

FORM PTO-1390
(REV. 5-95)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE ATTORNEY'S CASE NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371

U.S. APPLICATION NO. (known, see 37 CFR 1.5)

10/009907

INTERNATIONAL APPLICATION NO.
PCT/AU00/00656

INTERNATIONAL FILING DATE
09 June 2000

PRIORITY DATE CLAIMED
10 June 2001

TITLE OF INVENTION

CYCLING EVENT AND AUTO-TRIGGER MEMORY HANDLING

APPLICANT(S) FOR DO/EO/US

PLATT, Harry Louis; JANKOV, Vladimir ***SMALL ENTITY STATUS APPLICABLE***

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
 2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
 3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 19(1).
 4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
 5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
 6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
 7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
 8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
 9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
 10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).
- Items 11. to 16. below concern other document(s) or information included:
11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
 12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
 13. ☒ A **FIRST** preliminary amendment.
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
 14. ☐ A substitute specification.
 15. ☐ A change of power of attorney and/or address letter.
 16. ☒ Other items or information:
 1. International Search Report
 2. International Preliminary Examination Report

"Express Mail" mailing label number ET 670106897 US

Date of Deposit December 10, 2001

I hereby certify that this paper is being deposited with the U.S. Postal Service "Express Mail-Post Office to Addressee" service under 37 C.F.R. 1.10, on the date indicated above and is addressed to: Hon. Commissioner of Patents and Trademarks, Washington, D. C. 20231.

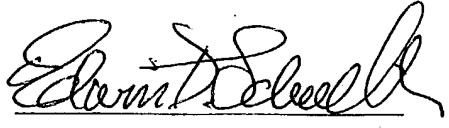


Edwin D. Schindler, Reg. No. 31,459

December 10, 2001

Date

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17. <input checked="" type="checkbox"/> The following fees are submitted:				CALCULATIONS		PTO USE ONLY	
Basic National Fee (37 CFR 1.492(a)(1)-(5)): Search Report has been prepared by the EPO or JPO..... \$830.00				JC13		Rec'd PCT/PTO 10 DEC 2001	
International preliminary examination fee paid to USPTO (37 CFR 1.482)..... \$640.00 No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)).. \$710.00 Neither international preliminary examination fee (37 CFR 1.482) nor \$1,040.00 international search fee (37 CFR 1.445(a)(2)) paid to USPTO..... \$950.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4)..... \$90.00							
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$ 1,040.00			
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$ -0-			
Claims	Number Filed	Number Extra	Rate				
Total 5 Claims	5 -20 =	-0-	X \$22.00	\$ -0-			
Independent Claims	1 -3 =	-0-	X \$74.00	\$ -0-			
Multiple dependent claims(s) (if applicable)			+ \$230.00	\$ -0-			
TOTAL OF ABOVE CALCULATIONS =				\$ 1,040.00			
Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).				\$ -520.00			
SUBTOTAL =				\$ 520.00			
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				+		\$ -0-	
TOTAL NATIONAL FEE =				\$ 520.00			
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +				\$ -0-			
TOTAL FEES ENCLOSED =				\$ 520.00			
				Amount to be:			
				refunded \$			
				charged \$			
a. <input checked="" type="checkbox"/> A check in the amount of \$**520.00 to cover the above fees is enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed. c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 19-0450. A duplicate copy of this sheet is enclosed.							
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.							
SEND ALL CORRESPONDENCE TO:				 SIGNATURE Edwin D. Schindler NAME 31,459 REGISTRATION NUMBER			
Edwin D. Schindler Five Hirsch Avenue P. O. Box 966 Coram, New York 11727-0966							

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: HARRY L. PLATT/V. JANKOV ART UNIT:
SERIAL NO.: 09/ EXAMINER:
FILED:
P.C.T. APPLICATION NO.: PCT/AU00/00656
PRIORITY CLAIMED: JUNE 10, 1999
P.C.T. INTERNATIONAL FILING DATE: JUNE 9, 2000
U.S. NATIONAL FEE PAID: DECEMBER 10, 2001
TITLE: CYCLING EVENT AND AUTO-TRIGGER MEMORY HANDLING

PRELIMINARY AMENDMENT

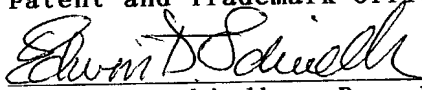
Hon. Commissioner for Patents
United States Patent and Trademark Office
Box PCT
Washington, D. C. 20231

Dear Sir:

Prior to an examination on the merits of the above-identified patent application, please amend the above-identified application as follows:

"Express Mail" mailing label number ET 670106897 US
Date of Deposit December 10, 2001

I hereby certify that this paper is being deposited with the U.S. Postal Service "Express Mail - Post Office to Addressee" service under 37 C.F.R. §1.10 on the date indicated above and is addressed to: Hon. Commissioner for Patents, United States Patent and Trademark Office, Washington, D. C. 20231.


Edwin D. Schindler, Reg. No. 31,459

December 10, 2001
Date

IN THE CLAIMS

Please cancel the second claim numbered as Claim "2" and add the following claim:

--5. The method of recording into memory of a cardiac event recorder according to claim 1, wherein if the recording is initiated by the auto-trigger, the cycling mode is not terminated or interpreted.--

REMARKS

Prior to an examination on the merits of the above-identified patent application, please enter the foregoing amendment.

Claims 1-5 are now pending in the above-identified patent application, as presented by the instant Preliminary Amendment. Claim 1 is the single claim presented in independent form.

The present application represents the U.S. National Phase of P.C.T. Application No. PCT/AU00/00656, filed June 9, 2000, and claiming foreign priority on the basis of a corresponding Australian patent application, filed June 10, 1999.

The originally-filed P.C.T. application now being entered into the U.S. National Phase (and for which no amendments were entered during the P.C.T. Chapter II international phase) inadvertently contained two claims numbered as Claim

"2."

By the present amendment, the second claim numbered as "2" is being cancelled, and is being identically rewritten as "new" Claim 5.

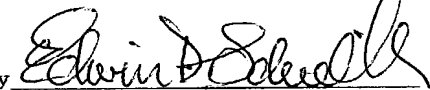
The application is now in condition for a full examination on the merits.

Accordingly, an early examination on the merits and allowance are, therefore, respectfully requested and earnestly solicited.

Respectfully submitted,

HARRY L. PLATT/V. JANKOV

By



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December 10, 2001

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CYCLING EVENT AND AUTO-TRIGGER MEMORY HANDLING

The present invention relates to the field of monitoring a cardiac patient's electrical cardiac activity by means of a cardiac event recorder and, in particular, to the memory handling of such event recorders.

5 BACKGROUND TO THE INVENTION

Cardiac event recorders usually have only one type of memory used for both manual and auto-triggered ECG recordings. Signal artifacts and noise can inadvertently cause a false triggering of the auto-trigger and thus fill the memory with useless information.

It would be advantageous to provide a method and apparatus which prevents the memory of
10 cardiac event recorders from being filled with useless information.

OBJECT OF THE INVENTION

It is an object of the present invention to provide a method and apparatus for the recording of an ECG which substantially overcomes or ameliorates the above mentioned disadvantages by preventing memory overflow.

15 DISCLOSURE OF THE INVENTION

According to one aspect of the present invention there is disclosed a method of recording into memory of a cardiac event recorder, said method including the steps of subdividing the memory into two parts, the two parts being a manual trigger memory and an auto-trigger memory, partitioning the auto-trigger memory into a plurality of auto-trigger recording
20 partitions, whereby in the event of a manual trigger, acquired signals are recorded continuously in said manual trigger memory and in the event of an auto-trigger, acquired signals are recorded continuously in said manual trigger memory and then copied into one of said plurality of auto-trigger recording partitions.

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Preferably, the recording is done in cycling mode whereby the signal is continuously recorded in the manual memory thus providing a segment of pre-event recording prior to the manual trigger which records information of a predetermined length of time.

Preferably, if the recording is initiated by the auto-trigger, the cycling mode is not
5 terminated or interrupted.

Preferably, at least two manual trigger recordings are able to be stored in the manual memory.

Preferably, the manual trigger recordings are about 2 to 3 times longer than the auto-trigger recordings.

10 BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be now be described with reference to the accompanying drawing in which:

Fig. 1 is a diagram showing the memory of the cardiac event recorder.

BEST MODE OF CARRYING OUT THE INVENTION

15 When recording an ECG using a cardiac event recorder (not illustrated), the data is recorded into RAM 10 which is generally recorded cyclically, ie when the memory is full, the data overflows and records over the previously recorded data.

The RAM 10 is subdivided into two parts, ie a manual trigger memory 11 and an auto-trigger memory 12. The auto-trigger memory 12 is further partitioned into a number
20 of auto-trigger memory recordings 13.

In this cyclic recording mode, the data is continuously recorded into the manual trigger memory 12 and thus when a manual trigger is received, this fact is recorded. The data recorded after a manual trigger is then stored in the manual trigger memory 11 with at least

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two manual triggered recordings be stored in the manual memory. In this cyclic memory mode, a segment of pre-event recording is also stored in the manual memory 11.

If an auto-trigger function initiated the trigger, the cycling mode is not terminated or interrupted (unlike the manual trigger). After the duration of the auto-triggered event which
5 is recorded in the manual memory 11, it is copied into one of the partitions 13 of the auto-trigger memory 12.

The foregoing describes only one embodiment of the present invention, and modifications obvious to those skilled in the art can be made thereto without departing from the scope of the present invention.

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CLAIMS

1. A method of recording into memory of a cardiac event recorder, said method including the steps of subdividing the memory into two parts, the two parts being a manual trigger memory and an auto-trigger memory, partitioning the auto-trigger memory into a plurality of auto-trigger recording partitions, whereby in the event of a manual trigger, acquired signals are recorded continuously in said manual trigger memory and in the event of an auto-trigger, acquired signals are recorded continuously in said manual trigger memory and then copied into one of said plurality of auto-trigger recording partitions.
2. The method of recording into memory of a cardiac event recorder according to claim 1, wherein the recording is done in cycling mode whereby the signal is continuously recorded in the manual memory thus providing a segment of pre-event recording prior to the manual trigger which records information of a predetermined length of time.
2. The method of recording into memory of a cardiac event recorder according to claim 1, wherein if the recording is initiated by the auto-trigger, the cycling mode is not terminated or interrupted.
3. The method of recording into memory of a cardiac event recorder according to claim 1, wherein at least two manual trigger recordings are able to be stored in the manual memory.
4. The method of recording into memory of a cardiac event recorder according to claim 1, wherein the manual trigger recordings are about 2 to 3 times longer than the auto-trigger recordings.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

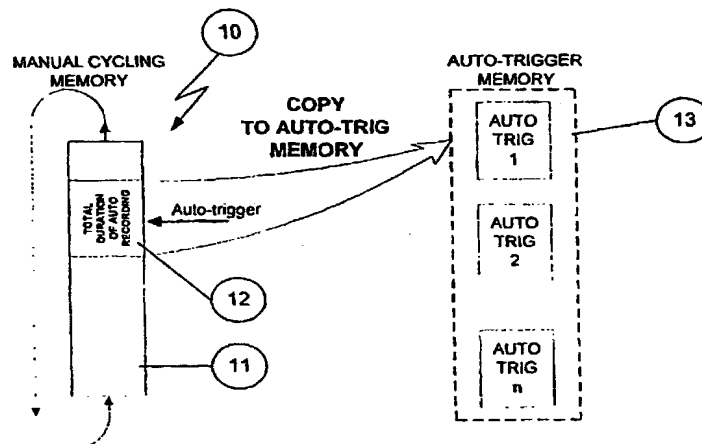
(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
21 December 2000 (21.12.2000)

PCT

(10) International Publication Number
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- (51) International Patent Classification⁷: **A61B 5/0402** (74) Agent: YOUNG, Philip, Claude; Wilson & Young, P.O. Box 553, Alexandria, NSW 1435 (AU).
- (21) International Application Number: PCT/AU00/00656 (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (22) International Filing Date: 9 June 2000 (09.06.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
PQ 0885 10 June 1999 (10.06.1999) AU (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- (71) Applicant (*for all designated States except US*): SHELL, Allan, Michael [AU/AU]; 14/166 Belmore Road, Randwick, NSW 2031 (AU).
- (72) Inventors: PLATT, Harry, Louis [AU/AU]; 14/166 Belmore Road, Randwick, NSW 2031 (AU). JANKOV, Vladimir [AU/AU]; 14/166 Belmore Road, Randwick, NSW 2031 (AU).
- Published:
— With international search report.
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CYCLING EVENT AND AUTO-TRIGGER MEMORY HANDLING



(57) Abstract: A method of recording into memory of a cardiac event recorder is disclosed. The method includes the steps of subdividing the memory into two parts, the two parts being a manual trigger memory and an auto-trigger memory, partitioning the auto-trigger memory into a plurality of auto-trigger recording partitions, whereby in the event of a manual trigger, acquired signals are recorded continuously in said manual trigger memory and in the event of an auto-trigger, acquired signals are recorded continuously in said manual trigger memory and then copied into one of said plurality of auto-trigger recording partitions. Preferably, the recording is done in cycling mode whereby the signal is continuously recorded in the manual memory thus providing a segment of pre-event recording prior to the manual trigger which records information of a predetermined length of time. Preferably, if the recording is initiated by the auto-trigger, the cycling mode is not terminated or interrupted.

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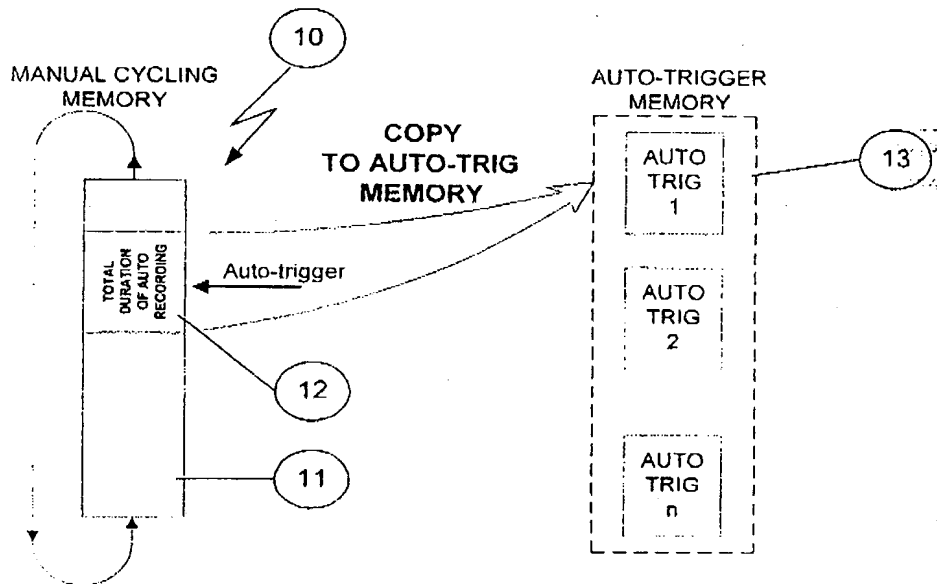


Fig 1

Declaration and Power of Attorney For Patent Application

English Language Declaration

As a below named inventor, I hereby declare that:

first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

CYCLING EVENT AND AUTO-TRIGGER MEMORY HANDLING

the specification of which

(check one)

☐ is attached hereto.

☒ was filed on 9 June 2000 as

Application Serial No. PCT/AU00/00656 (assigned U.S.S.N. 10/009,907)

and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
<u>PQ0885</u>	<u>Australia</u>	<u>10 June 1999</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
<u> </u>	<u> </u>	<u> </u>	<input type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
<u> </u>	<u> </u>	<u> </u>	<input type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT International filing date of this application:

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

EDWIN D. SCHINDLER, Registration No. 31,459


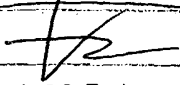
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Direct Telephone Calls to: (name and telephone number)

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Inventor's signature		Date August 30, 2002
Residence	14/166 Belmore Road, Randwick, NSW, 2031, Australia	
Citizenship	Australian	
Post Office Address	14/166 Belmore Road, Randwick, NSW, 2031, Australia	
Full name of second joint inventor, if any	Vladimir Jankov	
Second Inventor's signature		Date August 30, 2002
Residence	14/166 Belmore Road, Randwick, NSW, 2031, Australia	
Citizenship	Australian	
Post Office Address	14/166 Belmore Road, Randwick, NSW, 2031, Australia	

(Supply similar information and signature for third and subsequent joint inventors.)